Cisco BTS 10200 Softswitch Cabling and IRDP Procedures for Medium Hardware Platform AXmp Option

Feature History

Version	Modification
Release 3.x	The medium hardware platform AXmp/AXi option was used with optional dedicated SS7 cables.
Release 4.1	In Release 4.1, SS7 signaling is sent via SIGTRAN to an Internet transfer point (ITP), therefore, dedicated SS7 cables are not attached to the Cisco BTS 10200 Softswitch. These cables have been deleted from this document. In Release 4.1, four AXmp units are used (instead of two AXmp and two AXi). 06/07/2004—Added section "Set Node Addresses On the Host Machines".

This feature module is intended for use by service provider engineering and field personnel who are responsible for designing, installing, configuring, and maintaining networks that use the Cisco BTS 10200 Softswitch. The procedure in this feature module describes how to cable the medium hardware platform systems based on the Continuous Computing AXmp servers. This document is in addition to other Cisco BTS 10200 Softswitch documents that describe how to install and operate the system. Contact your Cisco account team for the documentation applicable to your specific system.

Scope and Purpose

This procedure is applicable to Cisco BTS 10200 Softswitch systems that are installed on Continuous Computing host machines, and using 2 Ethernet interfaces on each Call Agent (CA) host, and 2 Ethernet interfaces on each Element Management System (EMS) host.

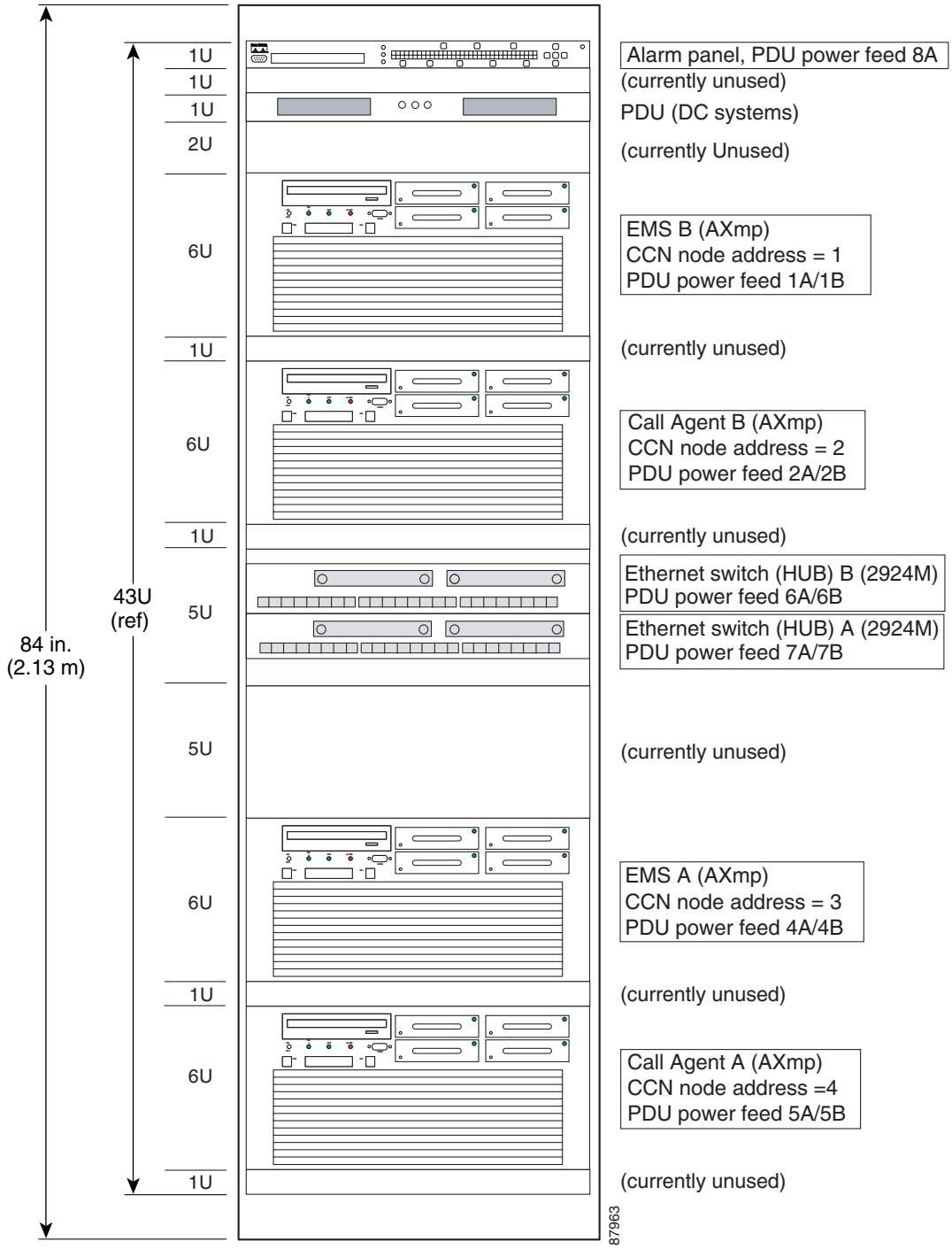
Note If you are not sure about the number of interfaces to use on your system, or if you are using host machines that are not Continuous Computing-based, contact your Cisco account team for clarification.

This procedure is **not** applicable to Cisco BTS 10200 Softswitch systems that are already in service.

Caution Do *not* use this procedure to change the cabling of an in-service Cisco BTS 10200 Softswitch, because that will cause interruption of service. It is not necessary to change the cabling of in-service systems to match this document.

An example of equipment mounting for the Cisco BTS 10200 Softswitch is shown in Figure 1.

Figure 1 Equipment Mounting Configuration (Example)



The purpose of this procedure is to explain how to:

- Cable a new Cisco BTS 10200 Softswitch system
- Enable Internet Control Protocol (ICMP) Router Discovery Protocol (IRDP) functionality on the Cisco BTS 10200 Softswitch and on the Cisco routers adjacent to the Cisco BTS 10200 Softswitch

Caution Do **not** use this procedure to change the cabling of an in-service Cisco BTS 10200 Softswitch, because that will cause interruption of service. It you need to change the cabling of in-service system, you must first contact your network administrator or your Cisco account team for a procedure.

Before You Start

Before you start cabling the system, perform the following verifications.

1. Verify that the hosts are already mounted in the rack according to manufacturer instructions, and labeled appropriately. Your system should have the following hardware units:
   - EMS Side A
   - EMS Side B
   - CA Side A
   - CA Side B
   - Cisco 2924M Ethernet Switch A
   - Cisco 2924M Ethernet Switch B
   - Power distribution unit (DC systems)
   - Alarm panel
2. Ask your supervisor or an authorized power installer to verify that appropriate power feeds are available, as defined in the site survey documentation for your system. The electrical power for your system must come from two separate (redundant) sources, so that a single point of failure does not cause a complete system outage.

Warning **IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

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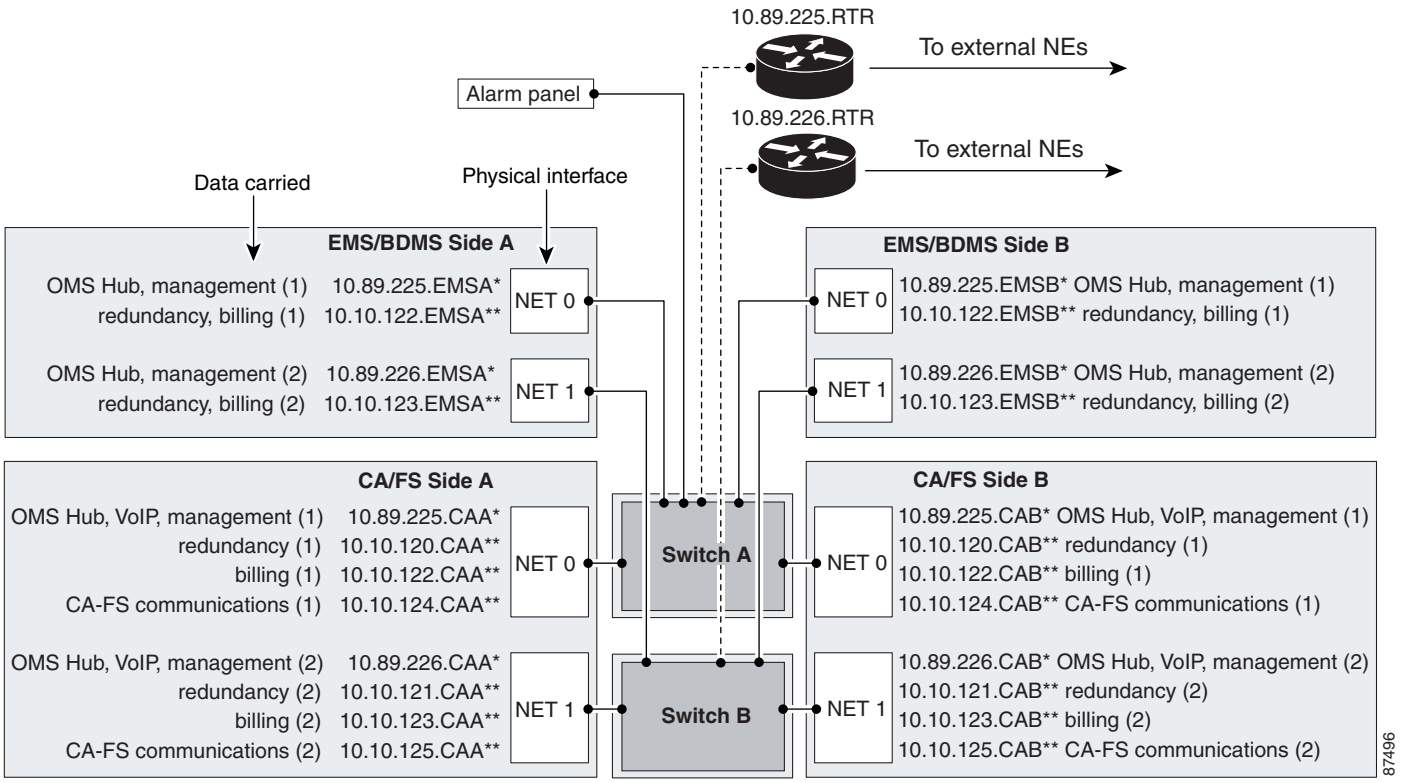
Network Diagram

Figure 2 shows the physical interfaces and network connections.

Figure 2 Network Diagram



Acronyms and symbols used in Figure 2:

EMS/BDMS = Element Management System/Bulk Data Management System
CA/FS = Call Agent/Feature Server
EMSA = EMS/BDMS Side A; EMSB = EMS/BDMS Side B
CAA = CA/FS Side A; CAB = CA/FS Side B
OMS Hub = communication interfaces between EMS/BDMS and CA/FS over OMS Hub
VoIP = Voice over IP signaling
* = Physical IP address
** = Logical IP address

Notes for Figure 2:

1. For the AXmp host machines, NET 0 represents the ETH0 port, and NET 1 represents the QFE0 port.
2. The IP addresses shown in the figure are for illustration purposes only. IP address examples that begin with 10.89 indicate externally viewable addresses, and those beginning with 10.10 indicate internal nonroutable addresses. The actual IP address data for each Cisco BTS 10200 Softswitch is in the Network Information Data Sheet that was supplied with your specific system.
3. "To external NEs" refers to any of the following links in the service provider network:

- Uplinks for external access to hosts, used for management services (via SSH, SFTP, and so forth) and outbound billing data (via FTP)
- Uplinks for external communications, used for connection to external NEs and DNS services via IRDP-enabled network

Note NE = Network element
SSH = Secure shell
SFTP = Secure file transfer protocol (FTP)
DNS = Domain name server
IRDP = Internet control message protocol (ICMP) router discovery protocol

4. To support full system redundancy, it is necessary to connect the two external uplinks to separate routers as shown in Figure 2. Furthermore, the routers must be connected to separate networks with diverse routing paths to the applicable external NEs and services (such as OSS, DNS, media gateways, and announcement servers).

Caution If each of the external uplinks is not connected as described in Note #3, a single point of failure could cause a traffic interruption.

5. To ensure redundancy of the DNS lookup function in the event of a network outage, it is strongly recommended to have two DNS servers reachable via separate networks with diverse routing paths.

Caution If both DNS servers become unreachable, a traffic interruption will occur.

Labeling the Cables

Make sure that you have all the cables labeled before you begin. Label the cables according to the procedure in Appendix A: Cable Labeling, page 17.

Connect Ethernet Cables To EMS and CA Units

Follow these steps to connect the Ethernet cables. Refer to Figure 1 on page 2 to identify the specific units in the rack.

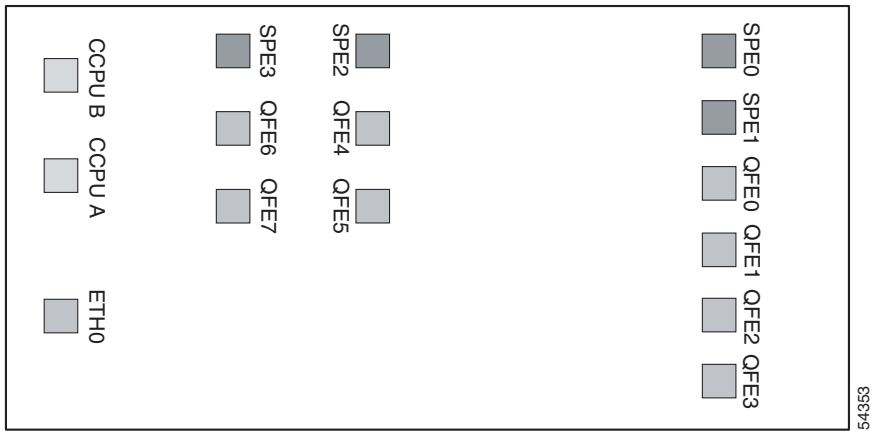
Step 1 Obtain the 4 Ethernet cables needed for connections between the rear panel of the Element Management Systems (EMS A and EMS B) and the two Cisco 2924M Ethernet Switches (Hub A and Hub B). These cables are listed in Table 1 in Appendix B: Cable List, page 18.

Step 2 Connect the 4 Ethernet cables to the ports on the rear panel of the EMS units as listed in Table 1 in Appendix B: Cable List, page 18.

Figure 3 shows the rear view of the AXmp host machine.

Note Figure 3 is not to scale.

Figure 3 Partial Rear View of the AXmp Unit Showing Ethernet Ports



AXmp

Step 3 Obtain the 4 Ethernet cables needed for connections between the rear panel of the Call Agents (CA A and CA B) and the two Cisco 2924M Ethernet Switches (Hub A and Hub B). These cables are listed in Table 1 in Appendix B: Cable List, page 18.

Step 4 Connect the 4 Ethernet cables to the ports on the rear panel of the CA units as listed in Table 1 in Appendix B: Cable List, page 18.

See Figure 3 for a rear view of the AXmp host machine.

Connect CONSOLE Ethernet Cables to Alarm Panel

Connect the two CONSOLE Ethernet cables from the Alarm Panel to the Cisco 2924M Ethernet Switches as described in this section.

Note These two CONSOLE cables are specially designed for the CONSOLE connections. Make sure that you are using the correct cables.

Note One end of the CONSOLE cable is labeled “switch” and the other is labeled “net CCN”. The “switch” end must connect to the Cisco 2924M Ethernet Switch (Hub) and the “net CCN” end must connect to the Alarm Panel.

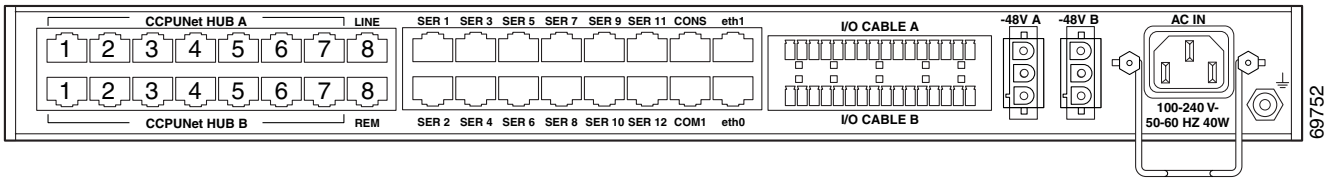
Step 1 Refer to Figure 1 on page 2 to identify which Cisco 2924M Ethernet Switch (Hub) is designated Ethernet Switch A and which is Ethernet Switch B.

Step 2 Connect the “net CCN” end of a CONSOLE cable to port SER 1 on the Alarm Panel, and the “switch” end to the CONSOLE port on the rear panel of Ethernet switch (Hub) A.

Step 3 Connect the “net CCN” end of a CONSOLE cable to port SER 2 on the Alarm Panel, and the “switch” end to the CONSOLE port on the rear panel of Ethernet switch (Hub) B.

The rear view of the alarm panel is shown in Figure 4. (The drawing is not to scale.)

Figure 4 Rear View of Alarm Panel


CCPUNet HUB A
LINE
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7 8
CCPUNet HUB B
REM
SER 1 SER 3 SER 5 SER 7 SER 9 SER 11 CONS eth1
SER 2 SER 4 SER 6 SER 8 SER 10 SER 12 COM1 eth0
I/O CABLE A
I/O CABLE B
-48V A
-48V B
AC IN
100-240 V-
50-60 HZ 40W
69752

Connect CCPUnet Cables and Terminating Resistors

Follow these steps to connect the intershelf signaling (CCPUnet) cables and terminating resistors:

Step 1 Obtain the eight CCPUnet cables (four for CCPU A and four for CCPU B).

Step 2 Connect the CCPUnet cables between the machines as listed in Table 1 on page 18. Make sure that you connect cables labeled CCPU A to the CCPU A ports, and cables labeled CCPU B to the CCPU B ports.

Note Refer to Figure 3 and Figure 4 to locate the CCPU ports on the rear panels.

Step 3 Connect the two terminating resistors (part # CCPU 012 02150-02602 REV 00) to the Alarm Panel (Figure 4) as follows: Connect one resistor to CCPUNet HUB A port 5, and the other resistor to CCPUNet HUB B port 5.

Set Node Addresses On the Host Machines

The following procedure explains how to set or change the node addresses on the host machines. This procedure can be used on systems that are new, and on systems that are in service.

When multiple host machines are on a common CCPU Net, you must give each machine a unique node address.

Note If two or more machines on a common CCPU Net have identical node addresses, unpredictable operation can occur.

Step 1 Action: Disconnect CCPU Net A and CCPU Net B cables from the rear of one of the host machines.

Result: The red alarm light on the front of the unit will become illuminated. This is expected.

Why: The host machines communicate with each other through the CCPU Net cables. Disconnecting these cables will isolate each unit and prevent non-unique addressed units from interacting.

Step 2 Action: Attach to console port. Connect to CCN CLI. You should see the following prompt

nodename(XX) ccncli>

where XX is the current node address in hexadecimal and nodename is the current name of that node.

Note If you don't see this prompt, depress the following keys ‘control+]’ followed by ‘.’ then press the enter key two times. This will take you to the CCN CLI. If not, check your serial connection. You should be using a straight cable, connecting at 38,400bps, 8,N,1.

Result: The prompt will report the current node setting.

Step 3 Action: From the CCN CLI prompt, type the following command ‘initmode on’.

Result: you will receive an echo of ‘initmode on’.

Why: This tells the CCN (control Computer) what state the system should be in when it is powered-up or reset.

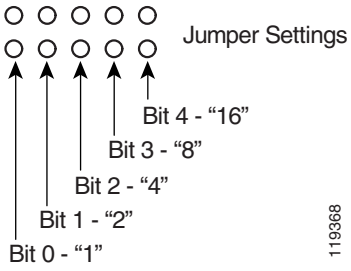
Step 4 Action: Set the jumpers on the unit.

Background: The host machines have jumpers on the receptacle that are used to set the node address of the server. This node address is used to control the node alarming and out-of-band control commands that go from node to node.

Caution The host machines should never be configured with duplicate addresses. If duplicate addresses are used, commands designated for one system may be received by more than one system, and spurious operation may result. For example, if two nodes have duplicate addresses, turning one node off may cause the second node to turn off.

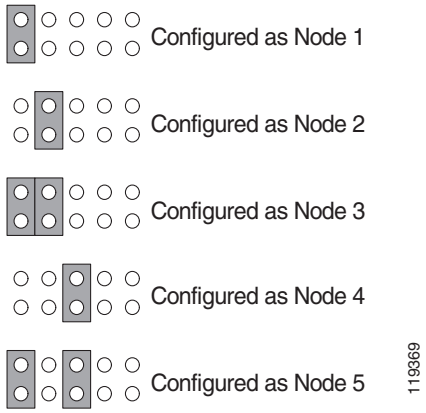
Jumper Settings: The jumpers are on the rear of the receptacle that remains attached to the cabinet even when the core is removed. These jumpers are shown in Figure 5.

Figure 5 View of Jumpers and Bit Locations



Using shunt jumpers, systems may be configured to different addresses. Figure 6 shows several sample configurations.

Figure 6 Sample Jumper Configurations



The units need to be configured as follows:

Primary EMS – Node 3
Primary CA – Node 4
Secondary EMS – Node 1
Secondary CA – Node 2

Result: You will see nothing from the front panel or console connection after performing this step.

Step 5 Action: At the CLI prompt, type the following command ‘reset’.

Result: You will see the reset banner.

Resetting CCN hardware and software on rdu-ems-(XX), where XX was the old node address. After the reset you should see

rdu-ems-(XX) ccncli>

where XX is the new address that was just set.

Step 6 Action: reconnect all the CCPU net cables to the module.

Why: This reconnects the unit to the out-of band communication network.

Step 7 Action: At the CLI prompt, type the following command ‘faults reset’.

Result: The red “alarm” light will turn off on the front of the unit.

Why: This command clears the fault that tripped when the CCPU Net cables were removed. The fault is a latching fault so it must be reset to clear the alarm.

Step 8 Action: Repeat Step 1 through Step 7 for the remaining host machines.

Connect External Network Uplink Cables to Ethernet Switches

Follow these steps to connect the external network uplink cables to the Ethernet switches:

Step 1 Refer to Figure 1 on page 2 to identify which Cisco 2924M Ethernet Switch is designated Ethernet Switch A and which is Ethernet Switch B.

Step 2 If your local network documentation calls for gigabit Ethernet, contact Cisco TAC for assistance.

Step 3 If your local network documentation calls for 100 Mb Ethernet, connect the applicable network uplink cables as listed in Table 1. Ports #21 through 24 are available for this use.

Step 4 After installing the uplink cables, record the necessary information on a copy of Table 1 or similar document according to local procedures.

Connect Intershelf Power and Grounding Cables

After obtaining approval from a supervisor, an authorized power installer should follow these steps to connect the intershelf power and grounding cables to the individual machines in the Cisco BTS 10200 Softswitch. The intershelf power cables are provided with your shipment.

Caution Ensure redundancy of power feeds to your system, so that a single point of failure does not cause a loss of traffic:

— For DC systems, power each host from two separate (redundant) DC power feeds.
— For AC systems, power Side A hosts from a separate power source than Side B.

Warning **IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

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Step 1 For DC-powered systems, connect the cables as follows:

a. Use the specific DC power cable that was provided for each machine in your shipment.

b. Connect the intershelf DC power cables from the power distribution unit (PDU) to each of the devices in the rack. There are two intershelf DC power cables per machine (one for power feed A and one for B). See Table 1 on page 18 for the complete cabling list.

c. Following local electrical codes, connect the ground cables from each of the devices in the rack to the PDU grounding point (either of the two grounding screws on the PDU rear panel). See Table 1 for the complete cabling list.

Step 2 For AC-powered systems, connect the cables as follows:

a. Use the specific AC power cable that was provided for each machine in your shipment.

b. For each A Side machine (A Side EMS, CA, and Ethernet Switch) connect the intershelf AC power cable from the device to one of the AC power strips.

c. For each A Side machine (A Side EMS, CA, and Ethernet Switch) connect the intershelf AC power cable from the device to the other AC power strip.

d. Connect the intershelf AC power cable from the Alarm Panel to either of the power strips.

Warning **This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.** Statement 1024

Connect Site Power and Grounding Cables

This section describes how to connect site power and grounding cables for DC- and AC-powered systems.

Note Cisco strongly recommends that you use uninterruptible power for both AC and DC systems. The uninterruptible supply should be engineered to support system operation through any possible power interruption.

Caution Ensure redundancy of power feeds to your system, so that a single point of failure does not cause a loss of traffic:

For DC systems, power the A and B power feeds on the PDU from two separate (redundant) DC sources. For AC systems, power each of the power strips from separate (redundant) AC power feeds.

DC-Powered Systems

Note For DC systems the nominal current rating for a complete Cisco BTS 10200 Softswitch system is 26A at -48 VDC, and the maximum current rating is 40A at -48 VDC.

After obtaining approval from a supervisor, an authorized power installer should follow these steps to connect the DC power from the office batteries to the PDU.

Warning **IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

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Step 1 Following local electrical codes, connect power cables from the power distribution unit (PDU) to dual feeds (“A” and “B”) on the office batteries. Use Listed two-hole crimped lugs on the PDU side of the cable.

Step 2 Following local electrical codes, connect the PDU grounding point (both of the two grounding screws on the PDU rear panel) to CO earth ground using 6 AWG wire or heavier and a Listed two-hole crimped lug.

Warning **This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.** Statement 1024

AC-Powered Systems

Follow these steps to connect site AC power.

Note For installations in the U.S.A. and Canada, two separate (redundant) circuits of 20A 120 VAC are required. The circuits must be sourced from separate transformer phases on separate breakers such that a single breaker trip will not disable both. They should also have dedicated ("green wire") earth grounds back to the same distribution panel grounding point. For countries other than the U.S.A. or Canada, contact your Cisco account team for electrical requirements.

Step 1 An authorized electrician must verify that the power source is adequate for the system.

Step 2 Connect each of the power strips to a separate AC feed as designated by the electrician.

Enable IRDP

This section explains how to enable IRDP functionality on the Cisco BTS 10200 Softswitch and on the network router.

Enable IRDP on the Cisco BTS 10200 Softswitch

Follow these steps to enable IRDP on the Cisco BTS 10200 Softswitch.

Note You should already have the Cisco BTS 10200 Softswitch application software installed on the system.

Step 1 Log in to EMS Side A as root user.

Step 2 Remove the defaultrouter file from /etc.

Step 3 There should be three default routes in the routing table. Remove all three of these with the following command:

route delete net default <gateway address>

Step 4 Execute the following command:

/usr/sbin/in.rdisc -s -f

Step 5 Edit S69inet and search and replace for rdisc -s with rdisc -s -f.

Note This will ensure that reboot will enable the irdp daemon.

Step 6 Put the following lines into the S68inet file:

if [-f /usr/sbin/in.routed];

then

\mv -f /usr/sbin/in.routed /usr/sbin/in.routed.org

Step 7 Repeat Step 1 through Step 6 for EMS Side B.

Step 8 Repeat Step 1 through Step 6 for CA Side A.

Step 9 Repeat Step 1 through Step 6 for CA Side B.

Enable IRDP on Adjacent Cisco Routers

If you are enabling IRDP on Cisco routers adjacent to the Cisco BTS 10200 Softswitch, follow these steps. If you have any questions about setup of these routers, contact your system administrator. If you need additional assistance, contact Cisco TAC.

Step 1 Verify that you have the Network Information Data Sheet (NIDS) applicable to this Cisco BTS 10200 Softswitch. If necessary, contact your network administrator to verify that you have the correct NIDS.

Step 2 On default gateway interfaces for Network 1 and Network 2 (as defined in the NIDS) enable IRDP using the following commands:

config t

interface <Fast Ethernet interface number (see NIDS)>

ip irdp

ip irdp maxadvertinterval 4

ip irdp minadvertinterval 3

ip irdp holdtime 10

Step 3 Validate the configuration by performing the following command on both CA/FS hosts and both EMS hosts:

login as root

#netstat -rn

Step 4 View the display and verify that each default route was populated dynamically by IRDP.

Verify IRDP Functions

Follow these steps to verify that IRDP is functioning properly on the network:

CA Side A

Perform Step 1 through Step 11 on CA Side A.

Step 1 Login to CA Side A as root.

Step 2 Display the IRDP daemon status by entering the following command:

ps -ef|grep in.rdisc

Step 3 View the display and verify that each default route was populated dynamically by IRDP. The display should include the following information: /usr/sbin/in.rdisc -s -f. (This indicates that IRDP is running properly.)

Step 4 Display the routing table by entering the following command:

netstat -rn

Step 5 Verify that the routing table shows two default routes, one on interface NET 0 and one on NET 1.

Step 6 Unplug the interface NET 0 link at the back of CA Side A.

Step 7 Display the routing table by entering the following command:

netstat -rn

Step 8 Verify that the route for interface NET 0 does not appear in the routing table.

Note When a link is unplugged or plugged back in, it may take 5 to 10 seconds for the IRDP function to automatically update.

Step 9 Plug the interface NET 0 link back in to CA Side A.

Step 10 Display the routing table (netstat -rn) and verify that the route for interface NET 0 appears in the routing table again.

Step 11 Repeat Step 6 through Step 10 for the interface NET 1 link.

CA Side B

Repeat Step 1 through Step 11 for CA Side B.

Verify Interfaces

Follow these steps to verify that all interfaces are configured on all computing elements:

Step 1 If the Cisco BTS 10200 Softswitch application software has already been installed on the system, go to Step 2. If the application has *not* been installed, go to Step 4.

Step 2 (If the Cisco BTS 10200 Softswitch application software *has already been installed* on the system) check the interface configurations using the following command on each of the four platforms (two EMS units and two CA/FS units):

Enter: checkCFG

Step 3 The system should display the message Validating..... If no errors are found during validation, the system will display the message No errors found. Verify that the No errors found message is displayed.

Note If the system does display an error, contact Cisco TAC for assistance.

Step 4 If the Cisco BTS 10200 Softswitch application software has *not* been installed on the system, install the application using the Application Installation procedure provided by Cisco. That procedure contains the appropriate commands to check the configurations (checkCFG).

Appendix A: Cable Labeling

Cables are labeled at both ends with the cable numbers listed in Table 1. Follow these steps to create and attach the labels.

Note As listed in Table 1, some of the cables require labeling and others do not.

Step 1 Make each label by copying the applicable number from Table 1 onto the label. Be sure to duplicate the number several times onto the label, as shown in Figure 7, to make it easier to read. (If desired, make the labels for all cables in one print run.)

Step 2 On a work bench or assembly table, position a cable so that one connector is on your left and the cable goes off to the right. (See Figure 7.)

Step 3 Attach the appropriate label to the cable as shown in Figure 7.

Step 4 Turn the cable around so that the other connector is on your left with the cable going off to the right.

Step 5 Repeat Step 2 and Step 3 for this side of the cable. The completed cable should look like the example shown in Figure 8.

Step 6 Repeat these steps for all cables in the rack, using the numbers from the cable list (Table 1).

Figure 7 Labeling Specification

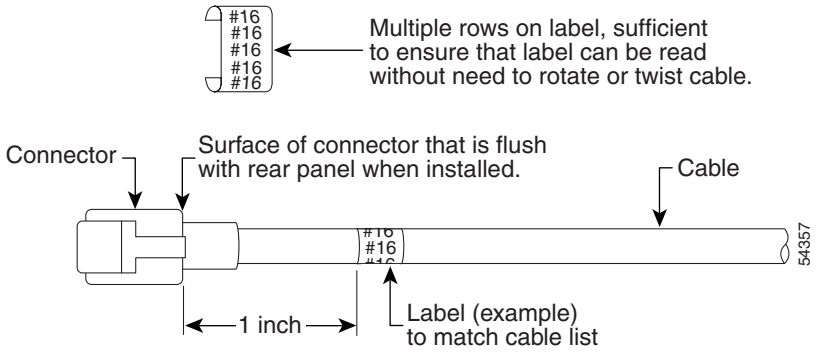
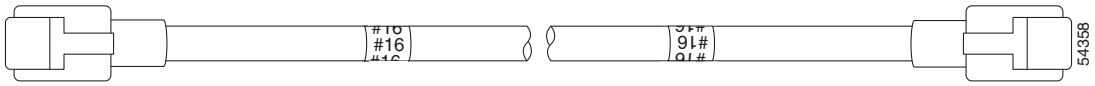


Figure 8 Completed Cable Example



Appendix B: Cable List

Table 1 lists the ports and cables used for signaling and system management on systems using Continuous Computing AXmp hosts. Make a copy of this table for your records, and fill in the port numbers that you use on the Cisco 2924M Ethernet switches. It is recommended that you sign or check each box in the Verified column as you connect the cables. Store this completed table in the documentation package for this unit.

Table 1 Signaling and System Management Cables for Systems with AXmp Host Machines

From (Unit, Port)	To (Unit, Port)	Suggested Cable No.	Verified
CA-A ETH0	SWITCH-A 1	#701	
CA-A QFE0	SWITCH-B 1	#702	
CA-B ETH0	SWITCH-A 2	#703	
CA-B QFE0	SWITCH-B 2	#704	
EMS-A ETH0	SWITCH-A 3	#705	
EMS-A QFE0	SWITCH-B 3	#706	
EMS-B ETH0	SWITCH-A 4	#707	
EMS-B QFE0	SWITCH-B 4	#708	
SWITCH-A 10 (see footnote 1)	Uplink to router for external communications[1] (Network 1)		
SWITCH-B 10 (see footnote 1)	Uplink to router for external communications[1] (Network 2)		
Alarm SER 1	HUB-A CONSOLE	CONSOLE cable[2]	
Alarm SER 2	HUB-B CONSOLE	CONSOLE cable[2]	
Alarm eth0	HUB-A 20	#29	
not used		#30	
CA-A CCPU A	Alarm CCPUNet A-1	#31	
EMS-A CCPU A	Alarm CCPUNet A-2	#32	
CA-B CCPU A	Alarm CCPUNet A-3	#33	
EMS-B CCPU A	Alarm CCPUNet A-4	#34	
n/a	Alarm CCPUNet A-5	Terminating Resistor CCPU 012 02150-02602 REV 00 (not a cable)	
CA-A CCPU B	Alarm CCPUNet B-1	#35	
EMS-A CCPU B	Alarm CCPUNet B-2	#36	
CA-B CCPU B	Alarm CCPUNet B-3	#37	
EMS-B CCPU B	Alarm CCPUNet B-4	#38	
n/a	Alarm CCPUNet B-5	Terminating Resistor CCPU 012 02150-02602 REV 00 (not a cable)	
PDU-A-1	EMS-B DC-A	#51	

Table 1 Signaling and System Management Cables for Systems with AXmp Host Machines

From (Unit, Port)	To (Unit, Port)	Suggested Cable No.	Verified
PDU-A-2	CA-B DC-A	#52	
PDU-A-4	EMS-A DC-A	#54	
PDU-A-5	CA-A DC-A	#55	
PDU-A-6	HUB-B DC-A	#56	
PDU-A-7	HUB-A DC-A	#57	
PDU-A-8	ALARM PANEL-A	#58	
PDU-B-1	EMS-B DC-B	#61	
PDU-B-2	CA-B DC-B	#62	
PDU-B-4	EMS-A DC-B	#64	
PDU-B-5	CA-A DC-B	#65	
PDU-B-6	HUB-B DC-B	#66	
PDU-B-7	HUB-A DC-B	#67	
PDU-B-8	ALARM PANEL-B	#68	
HUB-A Ground	PDU Ground		
HUB-B Ground	PDU Ground		
CA-A Ground	PDU Ground		
CA-B Ground	PDU Ground		
EMS-A Ground	PDU Ground		
EMS-B Ground	PDU Ground		
Alarm Panel Ground	PDU Ground		

1. The ports shown are applicable to 100 Mb Ethernet uplinks. Cable No. for uplink connections are customer-defined. See the procedure for more information. If you need to connect gigabit Ethernet instead of 100Mb Ethernet, contact Cisco TAC for assistance.
2. The CONSOLE cables are specially designed for Cisco 2924M Ethernet Switch CONSOLE port access. Make sure that you are using the correct cables. One end of the CONSOLE cable is labeled “switch” and the other is labeled “net CCN”. The “switch” end must connect to the Hub and the “net CCN” end must connect to the Alarm Panel.

Appendix C: Translated Safety Warnings

Statement 1071—Warning Definition

Warning **IMPORTANT SAFETY INSTRUCTIONS**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Waarschuwing **BELANGRIJKE VEILIGHEIDSINSTRUCTIES**

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

BEWAAR DEZE INSTRUCTIES

Varoitus **TÄRKEITÄ TURVALLISUUSOHJEITA**

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelemiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

SÄILYTÄ NÄMÄ OHJEET

Attention **IMPORTANTES INFORMATIONS DE SÉCURITÉ**

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS

Warnung **WICHTIGE SICHERHEITSHINWEISE**

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

Avvertenza **IMPORTANTI ISTRUZIONI SULLA SICUREZZA**

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI

Advarsel **VIKTIGE SIKKERHETSINSTRUKSJONER**

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE

Aviso **INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES

¡Advertencia! **INSTRUCCIONES IMPORTANTES DE SEGURIDAD**

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES

Varning! **VIKTIGA SÄKERHETSANVISNINGAR**

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR

Figyelem **FONTOS BIZTONSÁGI ELOÍRÁSOK**

Ez a figyelmezeto jel veszélyre utal. Sérülésveszélyt rejto helyzetben van. Mielott bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplo figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján keresheto meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

Предупреждение **ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ**

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ

警告 重要的安全性说明

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

주의 중요 안전 지침

이 경고 기호는 위험을 나타냅니다. 작업자가 신체 부상을 일으킬 수 있는 위험한 환경에 있습니다. 장비에 작업을 수행하기 전에 전기 회로와 관련된 위험을 숙지하고 표준 작업 관례를 숙지하여 사고를 방지하십시오. 각 경고의 마지막 부분에 있는 경고문 번호를 참조하여 이 장치와 함께 제공되는 번역된 안전 경고문에서 해당 번역문을 찾으십시오.

이 지시 사항을 보관하십시오.

Aviso **INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. Você se encontra em uma situação em que há risco de lesões corporais. Antes de trabalhar com qualquer equipamento, esteja ciente dos riscos que envolvem os circuitos elétricos e familiarize-se com as práticas padrão de prevenção de acidentes. Use o número da declaração fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham o dispositivo.

GUARDE ESTAS INSTRUÇÕES

Advarsel **VIGTIGE SIKKERHEDSANVISNINGER**

Dette advarselssymbol betyder fare. Du befinder dig i en situation med risiko for legemesbeskadigelse. Før du begynder arbejde på udstyr, skal du være opmærksom på de involverede risici, der er ved elektriske kredsløb, og du skal sætte dig ind i standardprocedurer til undgåelse af ulykker. Brug erklæringsnummeret efter hver advarsel for at finde oversættelsen i de oversatte advarsler, der fulgte med denne enhed.

GEM DISSE ANVISNINGER

تحذير **إرشادات الأمان الهامة**

يوضح رمز التحذير هذا وجود خطر. وهذا يعني أنك متواجد في مكان قد ينتج عنه التعرض لإصابات. قبل بدء العمل، احذر مخاطر التعرض للصدمات الكهربائية وكن على علم بالإجراءات القياسية للحيلولة دون وقوع أي حوادث. استخدم رقم البيان الموجود في أخر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز.
قم بحفظ هذه الإرشادات

Upozorenje **VAŽNE SIGURNOSNE NAPOMENE**

Ovaj simbol upozorenja predstavlja opasnost. Nalazite se u situaciji koja može prouzročiti tjelesne ozljede. Prije rada s bilo kojim uređajem, morate razumjeti opasnosti vezane uz električne sklopove, te biti upoznati sa standardnim načinima izbjegavanja nesreća. U prevedenim sigurnosnim upozorenjima, priloženima uz uređaj, možete prema broju koji se nalazi uz pojedino upozorenje pronaći i njegov prijevod.

SAČUVAJTE OVE UPUTE

Upozornění

DŮLEŽITÉ BEZPEČNOSTNÍ POKYNY

Tento upozorňující symbol označuje nebezpečí. Jste v situaci, která by mohla způsobit nebezpečí úrazu. Před prací na jakémkoliv vybavení si uvědomte nebezpečí související s elektrickými obvody a seznamte se se standardními opatřeními pro předcházení úrazům. Podle čísla na konci každého upozornění vyhledejte jeho překlad v přeložených bezpečnostních upozorněních, která jsou přiložena k zařízení.

USCHOVEJTE TYTO POKYNY

Προειδοποίηση

ΣΗΜΑΝΤΙΚΕΣ ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ

Αυτό το προειδοποιητικό σύμβολο σημαίνει κίνδυνο. Βρίσκεστε σε κατάσταση που μπορεί να προκαλέσει τραυματισμό. Πριν εργαστείτε σε οποιοδήποτε εξοπλισμό, να έχετε υπόψη σας τους κινδύνους που σχετίζονται με τα ηλεκτρικά κυκλώματα και να έχετε εξοικειωθεί με τις συνήθεις πρακτικές για την αποφυγή ατυχημάτων. Χρησιμοποιήστε τον αριθμό δήλωσης που παρέχεται στο τέλος κάθε προειδοποίησης, για να εντοπίσετε τη μετάφρασή της στις μεταφρασμένες προειδοποιήσεις ασφαλείας που συνοδεύουν τη συσκευή.

ΦΥΛΑΞΤΕ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ

אזהרה

הוראות בטיחות חשובות

סימן אזהרה זה מסמל סכנה. אתה נמצא במצב העלול לגרום לפציעה. לפני שתעבוד עם ציוד כלשהו, עליך להיות מודע לסכנות הכרוכות במעגלים חשמליים ולהכיר את הנהלים המקובלים למניעת תאונות. השתמש במספר ההוראה המסופק בסופה של כל אזהרה כד לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.

שמור הוראות אלה

Opomena

постои кај електричните кола и треба да ги познавате стандардните постапки за спречување на несреќни случаи. Искористете го бројот на изјавата што се наоѓа на крајот на секое предупредување за да го најдете неговиот период во преведените безбедносни предупредувања што се испорачани со уредот.
ЧУВАЈТЕ ГИ ОВИЕ НАПАТСТВИЈА

Ostrzeżenie

WAŻNE INSTRUKCJE DOTYCZĄCE BEZPIECZEŃSTWA

Ten symbol ostrzeżenia oznacza niebezpieczeństwo. Zachodzi sytuacja, która może powodować obrażenia ciała. Przed przystąpieniem do prac przy urządzeniach należy zapoznać się z zagrożeniami związanymi z układami elektrycznymi oraz ze standardowymi środkami zapobiegania wypadkom. Na końcu każdego ostrzeżenia podano numer, na podstawie którego można odszukać tłumaczenie tego ostrzeżenia w dołączonym do urządzenia dokumencie z tłumaczeniami ostrzeżeń.

NINIEJSZE INSTRUKCJE NALEŻY ZACHOWAĆ

Upozornenie

DÔLEŽITÉ BEZPEČNOSTNÉ POKYNY

Tento varovný symbol označuje nebezpečenstvo. Nachádzate sa v situácii s nebezpečenstvom úrazu. Pred prácou na akomkoľvek vybavení si uvedomte nebezpečenstvo súvisiace s elektrickými obvodmi a oboznámte sa so štandardnými opatreniami na predchádzanie úrazom. Podľa čísla na konci každého upozornenia vyhľadajte jeho preklad v preložených bezpečnostných upozorneniach, ktoré sú priložené k zariadeniu.

USCHOVAJTE SI TENTO NÁVOD

Statement 1024—Ground Conductor

Warning **This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.** Statement 1024

Waarschuwing **Deze apparatuur dient geaard te zijn. De aardingsleiding mag nooit buiten werking worden gesteld en de apparatuur mag nooit bediend worden zonder dat er een op de juiste wijze geïnstalleerde aardingsleiding aanwezig is. Neem contact op met de bevoegde instantie voor elektrische inspecties of met een elektricien als u er niet zeker van bent dat er voor passende aarding gezorgd is.**

Varoitus **Laitteiden on oltava maadoitettuja. Älä koskaan ohita maajohdinta tai käytä laitteita ilman oikein asennettua maajohdinta. Ota yhteys sähkötarkastusviranomaiseen tai sähköasentajaan, jos olet epävarma maadoituksen sopivuudesta.**

Attention **Cet équipement doit être mis à la masse. Ne jamais rendre inopérant le conducteur de masse ni utiliser l'équipement sans un conducteur de masse adéquatement installé. En cas de doute sur la mise à la masse appropriée disponible, s'adresser à l'organisme responsable de la sécurité électrique ou à un électricien.**

Warnung **Dieses Gerät muss geerdet sein. Auf keinen Fall den Erdungsleiter unwirksam machen oder das Gerät ohne einen sachgerecht installierten Erdungsleiter verwenden. Wenn Sie sich nicht sicher sind, ob eine sachgerechte Erdung vorhanden ist, wenden Sie sich an die zuständige Inspektionsbehörde oder einen Elektriker.**

Avvertenza **Questa apparecchiatura deve essere dotata di messa a terra. Non escludere mai il conduttore di protezione né usare l'apparecchiatura in assenza di un conduttore di protezione installato in modo corretto. Se non si è certi della disponibilità di un adeguato collegamento di messa a terra, richiedere un controllo elettrico presso le autorità competenti o rivolgersi a un elettricista.**

Advarsel **Dette utstyret må jordes. Omgå aldri jordingslederen og bruk aldri utstyret uten riktig montert jordingsleder. Ta kontakt med fagfolk innen elektrisk inspeksjon eller med en elektriker hvis du er usikker på om det finnes velegnet jordning.**

Aviso **Este equipamento deve ser aterrado. Nunca anule o fio terra nem opere o equipamento sem um aterramento adequadamente instalado. Em caso de dúvida com relação ao sistema de aterramento disponível, entre em contato com os serviços locais de inspeção elétrica ou um eletricista qualificado.**

¡Advertencia! **Este equipo debe estar conectado a tierra. No inhabilite el conductor de tierra ni haga funcionar el equipo si no hay un conductor de tierra instalado correctamente. Póngase en contacto con la autoridad correspondiente de inspección eléctrica o con un electricista si no está seguro de que haya una conexión a tierra adecuada.**

Varning! **Denna utrustning måste jordas. Koppla aldrig från jordledningen och använd aldrig utrustningen utan en på lämpligt sätt installerad jordledning. Om det föreligger osäkerhet huruvida lämplig jordning finns skall elektrisk besiktningsauktoritet eller elektriker kontaktas.**

Figyelem **A berendezés csak megfelelő védőföldeléssel működtethető. Ne iktassa ki a földelés csatlakozóját, és ne üzemeltesse a berendezést szabályosan felszerelt földelő vezeték nélkül! Ha nem biztos benne, hogy megfelelő földelés áll rendelkezésbe, forduljon a helyi elektromos hatóságokhoz vagy egy villanyszerelőhöz.**

Предупреждение Данное устройство должно быть заземлено. Никогда не отключайте провод заземления и не пользуйтесь оборудованием при отсутствии правильно подключенного провода заземления. За сведениями об имеющихся возможностях заземления обратитесь к соответствующим контролирующим организациям по энергоснабжению или к инженеру-электрику.

警告 此设备必须接地。切勿使接地导体失效，或者在没有正确安装接地导体的情况下操作该设备。如果您不能肯定接地导体是否正常发挥作用，请咨询有关电路检测方面的权威人士或电工。

警告 この装置はアース接続する必要があります。アース導体を破損しないよう注意し、アース導体を正しく取り付けないまま装置を稼働させないでください。アース接続が適正であるかどうか分からない場合には、電気検査機関または電気技術者に相談してください。

Obtaining Documentation

Cisco provides several ways to obtain documentation, technical assistance, and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation on the World Wide Web at this URL:

http://www.cisco.com/univercd/home/home.htm

You can access the Cisco website at this URL:

http://www.cisco.com

International Cisco web sites can be accessed from this URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which may have shipped with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or through an annual subscription.

Registered Cisco.com users can order the Documentation CD-ROM (product number DOC-CONDOCCD=) through the online Subscription Store:

http://www.cisco.com/go/subscription

Ordering Documentation

You can find instructions for ordering documentation at this URL:

http://www.cisco.com/univercd/cc/td/doc/es_inpck/pdi.htm

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:

  http://www.cisco.com/en/US/partner/ordering/index.shtml

- Registered Cisco.com users can order the Documentation CD-ROM (Customer Order Number DOC-CONDOCCD=) through the online Subscription Store:

  http://www.cisco.com/go/subscription

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, U.S.A.) at 408 526-7208 or, elsewhere in North America, by calling 800 553-NETS (6387).

Documentation Feedback

You can submit comments electronically on Cisco.com. On the Cisco Documentation home page, click **Feedback** at the top of the page.

You can e-mail your comments to bug-doc@cisco.com.

You can submit your comments by mail by using the response card behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com, which includes the Cisco Technical Assistance Center (TAC) Website, as a starting point for all technical assistance. Customers and partners can obtain online documentation, troubleshooting tips, and sample configurations from the Cisco TAC website. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC website, including TAC tools and utilities.

Cisco.com

Cisco.com offers a suite of interactive, networked services that let you access Cisco information, networking solutions, services, programs, and resources at any time, from anywhere in the world.

Cisco.com provides a broad range of features and services to help you with these tasks:

- Streamline business processes and improve productivity
- Resolve technical issues with online support
- Download and test software packages
- Order Cisco learning materials and merchandise
- Register for online skill assessment, training, and certification programs

To obtain customized information and service, you can self-register on Cisco.com at this URL:

http://www.cisco.com

Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two levels of support are available: the Cisco TAC website and the Cisco TAC Escalation Center. The avenue of support that you choose depends on the priority of the problem and the conditions stated in service contracts, when applicable.

We categorize Cisco TAC inquiries according to urgency:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.

- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Cisco TAC Website

You can use the Cisco TAC website to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC website, go to this URL:

http://www.cisco.com/tac

All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC website. Some services on the Cisco TAC website require a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to this URL to register:

http://tools.cisco.com/RPF/register/register.do

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC website, you can open a case online at this URL:

http://www.cisco.com/en/US/support/index.html

If you have Internet access, we recommend that you open P3 and P4 cases through the Cisco TAC website so that you can describe the situation in your own words and attach any necessary files.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. These classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer automatically opens a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to this URL:

http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). When you call the center, please have available your service agreement number and your product serial number.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The *Cisco Product Catalog* describes the networking products offered by Cisco Systems as well as ordering and customer support services. Access the *Cisco Product Catalog* at this URL:

  http://www.cisco.com/en/US/products/products_catalog_links_launch.html

- Cisco Press publishes a wide range of networking publications. Cisco suggests these titles for new and experienced users: *Internetworking Terms and Acronyms Dictionary, Internetworking Technology Handbook, Internetworking Troubleshooting Guide,* and the *Internetworking Design Guide.* For current Cisco Press titles and other information, go to Cisco Press online at this URL:

  http://www.ciscopress.com

- *Packet* magazine is the Cisco monthly periodical that provides industry professionals with the latest information about the field of networking. You can access *Packet* magazine at this URL:

  http://www.cisco.com/en/US/about/ac123/ac114/about_cisco_packet_magazine.html

- *iQ Magazine* is the Cisco monthly periodical that provides business leaders and decision makers with the latest information about the networking industry. You can access *iQ Magazine* at this URL:

  http://business.cisco.com/prod/tree.taf%3fasset_id=44699&public_view=true&kbns=1.html

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in the design, development, and operation of public and private internets and intranets. You can access the *Internet Protocol Journal* at this URL:

  http://www.cisco.com/en/US/about/ac123/ac147/about_cisco_the_internet_protocol_journal.html

- Training—Cisco offers world-class networking training, with current offerings in network training listed at this URL:

  http://www.cisco.com/en/US/learning/le31/learning_recommended_training_list.html

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Cisco BTS 10200 Softswitch Cabling and IRDP Procedures for Medium Hardware Platform AXmp Option

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